1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

especially as they are reflected in the primitive minds of the local tribe; and careful study of the habits and history of the Seri shows that the dangerous strait has been a potent factor in preserving tribal existence and perpetuating tribal integrity. Naturally the factor operates through navigation; for it is by means of this art that the tribesmen are able to avoid or to repel the rare invaders of either mainland or insular portions of their province, the overland pioneers from the east being stopped by the strait and the maritime explorers from south and west being unable to maintain themselves long about the stormy shores and never outfitted for pushing far toward the mainland retreats and strongholds; while by means of their light and simple craft the Seri were able to retreat or to advance across the strait as readily as over the adjacent lands to which they were wonted by the experience of generations. In their minds, indeed, El Infiernillo is the nucleus of their province. So the Seri were among the lowliest learners of that lesson of highest statecraft, that lands are not divided but united by intervening sea; and their ill-formulated and provincial notions are of much significance in their bearing on antochthonous habits and habitats.

The water craft of which the Seri make so good use is a balsa, made of three bundles of carrizal or cane lashed together alongside, measuring barely 4 feet abeam, 1½ feet in depth, and some 30 feet in length over all. A fine specimen (except for a slight injury at one end) is shown in plan and profile in plate XXXI. It was obtained near Boca Infierno in 1895, partly towed and partly paddled thence to Embarcadero Andrade, wagoned laboriously across Desierto Encinas and on to Hermosillo, conveyed in an iron-sheathed box on two gondolas of the narrow-gage Ferrocarril de Sonora to the international frontier, and finally freighted to the United States National Museum, where (in the Mall just outside the building) the photographs reproduced in the plate were taken.

The manufacture of the balsa has never been seen by Caucasian eyes, but the processes are safely inferred from the structure, whose testimony is corroborated in part by Mashém's imperfect descriptions. The first step is the gathering of the carrizal from one of the patches growing about the three or four permanent fresh waters of Seriland, the canes being carefully selected for straightness, symmetry, and uniformity in size; these are then denuded of leaves and tassels, tied in bundles of convenient size (one seen on Tiburon contained 40 or 50 canes), and carried to the shore. In actual construction the canes are laid butt to butt, but overlapping 2 or 3 feet, the overlap being shifted this way and that with successive additions, so that the aggregate length of overlapping in the bundle reaches 10 or 12 feet—i. e., the full length of the body of the finished craft. The growing bundle is wrapped from time to time with lashings of mesquite root or maguey fiber, and kept in cylindrical form by constant rolling and by means of the lashing; though the cord used for the purpose is so slender as to do little more than serve the purposes

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

of manufacture (only stray shreds of the interior cording could be found in an old and abandoned balsa on Punta Antigualla). As the bundle approaches the requisite size, the building process changes; the butts of the successively added stalks are thrust obliquely into the interstices extending beyond the butts of earlier-used canes, and the stems are slightly bent to bring them into parallelism with their fellows; and this interweaving process is continued with increasing care until, when the bundle is completed, there are no visible butts (all being pushed into the interior of the bundle), while the only visible tips are those projecting to form the tapering extremities. The finished bundle is then secured by a spiral winding of slender cord. Two other bundles are next made, the three being entirely similar, so far as is known; then the three are joined by a lashing of slender cord like that used for the separate bundles, which is twined alternately above and below the central bundle in such manner as to hold the three in an approximate plane save toward the extremities, where the lashing is much firmer and the tapering tips of the bundles are brought into a triangular position, i. e., the position of smallest compass. The cordage is of either mesquite root or maguey fiber, the former being the more common, so far as observed (doubtless by reason of the dearth of the latter plant); it is notably uniform in twist and size, though surprisingly slender for the purpose, barely three-sixteenths of an inch, or 5 mm., in diameter, and limited in quantity.[1] The only tools or implements used in the manufacture (and repair), so far as is known, are light wooden marlinspikes, two of which are illustrated in figure 26; these are used in working the cane butts into the bundles. In collecting the canes the tassels are broken off and the leaves stripped by the unaided hands, while the stalks are broken off usually below the secondary roots in the downward taper, and the rootlets and loose ends are removed either with the hands or by fire.

The finished balsa is notably light and buoyant. The Boca Infierno specimen was estimated to weigh about 250 pounds (113 kilograms) when thoroughly dry, and little more than 300 pounds (136 kilograms)

FIG. 26.—Seri marlinspikes.

[1] Only the finer cording shown in plate XXXI is original, the coarser ropes having been added to facilitate handling.

3:Davis & Dawson I-5 (1922-1960) 1945
NU31 5mi NU31

482 fashioned to fit the head (Fig. 7) and to aid in balancing the forty- to fifty-pound water-filled olla as it was carried over the rough and hilly trails from aguaje to jacal. (It is not certain whether the use of the shoulder pole, or palanca, was a part of original Seri culture, but in more recent times two water vessels were frequently carried, hung from either end of the notched pole.)

396 [462] While the tasks of supplying water and of manufacturing the vessels used in its transport were generally delegated to the women and children of the household, the building of the balsa was an undertaking that required the co-operation of the entire group. The carrizo canes were first gathered by the women and boys from the patches growing about the few permanent fresh waters of Seriland (Fig. 4). The leaves and tassels of the canes were removed by hand and the canes tied in bundles for carrying to the shore. There the men proceeded to lay, overlap, interlace and bind the canes into a larger and larger cylindrical bundle, tapering at

[p. 197(B)]

396 the extremities. Throughout the process the cord used for lashing was laboriously made
[283] by hand and mouth by the women who ob-
tained the fibrous raw material from mes-
[462] quite tree roots, from the yucca or the maguay. Three of the finished bundles were lashed together to form a watercraft some thirty feet in length and of four-foot beam. These large balsas were buoyant enough to carry several members of a family across El Infiernillo channel. One-man balsas were also made (Fig. 5) principally for use in turtle fishing.

225 Except during the egg-laying season
411 turtles had to be sought from the balsa. The Seris lacked tool sense in the extreme, but their clumsy brains had devised a harpoon for use against the turtle. The hard, penetrating point was commonly made of native ironwood, but may also have been the sharpened tooth of a sea lion or the shin bone of a deer. It was fitted and firmly cemented with mesquite gum to a short, hardwood foreshaft whose rounded end fitted into the

[p. 197(C)]
[text continues on p. 198(B)]

3:Davis & Downes E-6 (1922-1960) 1965
HU31 Sant HU32

105 178 and a veteran of nearly a century of warfare against the soldiers of Sonora. The turtle remained their most important source of food, and the pitahaya harvest the most enjoyed. The crafts of their old culture were largely gone, however. Hoop-iron had come in for many uses: harpoon points, scrapers, and knives. The bow and arrow had been almost entirely supplanted by rifles of which the tribe possessed more than thirty. The handmade olla was fast disappearing in favor of the five-gallon tin can, and water [482] carrying, now much done by the males, was accomplished by means of a palanca, borne on the heavily calloused shoulder, to which a can was suspended from each end.

It seemed that the balsa building art was 178 encountered barely as it passed into extinction, for the last balsa known to have been 396 made by the Seris was found in use near [126] Kino, in 1922. This rare prize was immediately bargained for and in exchange it was agreed that the tribesman should have lumber to build a boat large enough for all the people of his family. A few months later the finished craft, caulked with a "piteh" made

[p. 264 (A)]

178 of sea lion oil and powdered cactus skeleton,
● 396 was launched. It was the largest craft they had ever possessed and came to be called the "battleship," for its size.

After having established firm friendship
114 with the tribe in 1922, it was possible two years later to carry out an extensive plan to
221 learn the habits of the Seris by living among them, sharing their comradeship along with their privations. At this time they still had no homes that could even be called semi-permanent. Moving here and there in response to fluctuations of their precarious food supply, household things were not ac-

cumulated, and life continued to be reduced to its very simplest elements and absolute necessities. Baskets made of fiber from the torote tree, some tin cooking and water ves-
[415] sels (the handmade olla was seldom any longer made), some patched and filthy rags which served as blankets to the fortunate few, constituted the family possessions (Fig. 15). Starved, bony family dogs were abun-
231 dant, as always, every Indian having one or two (Fig. 16). Each day they could be seen gnawing on some old fish head long since

[p. 264 (B)]
[Text continues on p. 265(A)]

5:Dawson N-5 (1940) 1944 NU31 Seri NU31

DESERT
PLANT LIFE

SIXTEENTH YEAR NUMBER 9

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SOME ETHNOBOTANICAL NOTES ON THE SERI INDIANS

105 If the natural resources of a region may be said to reflect the degree of
121 cultural and social development of its aboriginal people, we may easily understand why the Seris of Sonora, now approaching extinction and with much modified habits and culture, are considered the most primitive and savage of American Indians. Certainly the arid coast of Sonora, destitute
[33] of water but for a few widely separated, stagnant holes, with a dry, rocky soil habitable only by the most frugal and thorny of desert vegetation, presents little in the way of resources to a native people. It was, indeed,
[262] only along the ocean shore that the Seris found animal food sufficient to sustain them, principally, the sea turtle and the pelican. This food source proved adequate to support a tribe of some 2000 in pre-Columbian times, but the limited habitat of the pelican and turtle brought about extreme isolation of the people. Thirty-mile-long Tiburon Island became their principal home, separated from the mainland by the narrow but tempestuous channel, El Infiernillo, across which they frequently voyaged in their buoyant balsas to search out vegetal supplements to their monotonous sea food diet. It is this use of vegetable materials, not only as food but in other phases of the domestic economy of these people in earlier times, with which these notes are particularly concerned.

225 Primary occupation of the Seris aside from their continual movement to and from the water holes was, necessarily, their search for food, for they cultivated nothing and conserved little. Fish were exceedingly abundant in the waters around their island, but their very limited tool sense, pro-
[227] viding them with almost no fishing devices, excluded much of this food from their diet. Clams and other shellfish were to be had, but it was the abundant green sea turtle, feeding upon luxuriant growths of marine grass, *Ruppia maritima*, in the shallow, sandy lagoons along El Infiernillo, that provided their meat staple. The turtles could be captured with ease during egg laying season as they crawled over the beach, but at other times they had to be
396 speared from a watercraft. No sizable timber grows in Seriland and before the advent of flotsam boards and hoop-iron it would have strained the

5:Dawson N-5 (1940) 1944 NU31 Seri NU31

ingenuity of a modern shipbuilder to have constructed a boat. These simple, desert people, however, through centuries of struggle for life in their desolate realm had learned to use every natural material available to them, however laborious the tasks and inefficient the products. The carrizal reed, *Phragmites communis*, grows about the few permanent water holes of Seriland, and from countless numbers of these slender, buoyant canes they built their watercraft. The reeds were stripped of leaves and gathered in long bundles, bound together and gradually augmented by more and more interlaced canes until a bundle 18 to 30 feet long and 1½ feet in diameter, tapering at both ends, was made. Three of these were then bound together with cords of fiber or human hair, making a maneuverable one or two man raft, easily transported to the shores.

The mesquite tree, *Prosopis juliflora*, provided fiber for cords. The flexible outer tissues of the roots were stripped off, soaked and progressively pounded, split and worked between hand and mouth until very slender, fibrous threads were obtained which were then twisted into cords. In some cases a coarse, rough fabric was woven from these fibers, but most garments were made of pelican skins. The strips of workable mesquite root or sometimes yucca fiber were also used in making doughnut-shaped head pads which aided in balancing the capacitous earthen water jars as they were carried on the heads of the women over rough and stony trails from water hole to camp site.

While occupying the turtle fishing camps on El Infiernillo during the good season, vegetable supplements to the fishy diet were few. Every nourishing seed or woody fruit yielded by the desert was carefully gathered; even the tiny seeds of the sea grass, *Ruppia*, were sorted from beach drift and made into meal. Never did the Seris learn to cultivate any crop or domesticate any animals other than the half wild coyote dogs that lived in mutual toleration with them. Even had they done so, their success in the barren, waterless land would have been small.

Sterile as is the Seri's hinterland, for a time each summer the thorny plants with which it is so profusely stocked ripen an abundant crop of fruit. The cacti in particular yield a wonderful harvest of luscious and succulent fruits, and toward this fortuitous supply the Seris were accustomed to move in June and July. The foothills of Sierra Seri on the mainland are adorned with great numbers of giant cacti, *Pachycereus Pringlei*, *Carnegiea gigantea* and *Lemaireocereus Thurberi* from which the luscious pitahayas were readily knocked down when ripe. The Indians wandered into the cactus forest and after a simple ritual marking the beginning of the feast, proceeded to gorge themselves for weeks on the succulent fruit until waning supply and cloying appetite drove them back to more severe food-getting activity by the sea. They did not customarily find it necessary to leave the cactus forest, however, as soon as the supply of fruits was no longer sufficient, for by the time the fruiting season was ended they had provided themselves with a second harvest. The pitahayas, gorged in such tremendous quantity throughout the season, were very imperfectly digested; the miriads of hard seeds, particularly, passed through the system unchanged and with the preservation of these in mind the Indians carefully collected with the aid of large sea shells all such seedy discharges and let them dry in the desert sun. Thus, as the supply of fresh fruit faded they proceeded to the use of this hoard

5:Dawson N-5 (1940) 1944 NU31 Seri NU31

252 of nutritious material which was ground to powder on their stone ahsts, winnowed in shallow baskets and made into a meal or paste.

764 824 The abundant cacti of many species served several other functions in the domestic economy of the Seris. The thorny cholla whose insipid fruits were not fit to eat and whose spines were a constant threat to the unprotected bodies of the Seris, found one use, nevertheless, in the burial procedure. After a body was partly covered with earth in the three foot deep grave, it was densely overlaid with chollas before leveling, to discourage the coyotes from digging for the body.

396 824 The dry skeletons of the giant cacti provided the long, cylindrical poles used in knocking off ripe pitahayas as well as in all other instances in which a straight, slender pole was needed. Since the advent of the open boat in modern times, the cactus skeleton has come in for a new use, for after trituration between stone ahst and hupf, it was found to yield a satisfactory caulking compound when mixed with sea-lion oil.

312 824 The barrel cacti, *Ferocactus Wislizenii* and *F. Coulteri*, though ordinarily abundant on the Sonoran desert are rare in Seriland and practically absent from Isla Tiburon where they may easily have been exterminated by the improvident Seris during their centuries of occupancy on account of their recognized value as water providers on the wastelands over which the Seris so frequently ventured.

342 [132] 824 These Indians found housing no problem, for, living under a climate in which frost is rare and rain infrequent, they found little need for shelters except for protection against the blazing desert sun. Camps that were occupied for more than a day or two, however, usually saw the appearance of a group of crude sun shelters. These were usually made of long, flexible ocotillo branches, *Fouquieria splendens*, stuck in the sand and fashioned into an arched framework over which a more or less complete covering of brush was piled. If, by the sea, a windbreak were desired, the brush top and siding were usually augmented by the addition of several empty turtle shells.

262 824 On the delta plain of the Rio Sonora, the mesquite, *Prosopis juliflora*, grows in remarkable luxuriance, these gnarled, spiny trees forming an almost continuous open forest 20-40 feet high. Its fruit, consisting of small, hard beans borne in slender, woody pods forms a concentrated, starchy food that the Seris found highly nutritious if not appetizing. In late summer when all fresh vegetable food had withered and disappeared, provided the turtle fisheries had not yet attracted them back to their island, they often spent [252] some weeks gathering the beans and grinding them into a meal which was eaten as a watery atole or as a paste mixed with sea-lion oil. The more straggly and thorny cat's claw mesquite, *Acacia Greggii*, and the ironwood, *Olneya tesota*, also yielded woody beans in limited quantity.

[218] In the deeper gorges of the mountains the Seris found *Guaiacum Coulteri* yielding a berry of medicinal properties and also *Jacquinia pungens* which produced a nut, edible when not quite ripe, and forming a favorite rattle-[534] bead when dry.

Along sandy washes, particularly on the lower flood plain of the llano grows a low, shrubby weed, *Hymenoclea monogyra*. Although during times of drought it shrinks to stunted tussocks, after periods of heavy rain its flourishing fens produce abundant seeds eaten both by the beasts of the plain and formerly by the Seris.

285 [191] Before the advent of the tin can and the cardboard carton, basketry was an important handicraft among these Indians.

[TEXT CONTINUES ON P. 138--ANALYST]

so all the other flies could see and also come to this dead thing."

A few weeks ago, Antonio Herrera had a very vivid dream. He dreamed that he was hunting in the mountains for deer and came across a cave. (These volcanic mountains are pitted with caves.) He went into the cave and saw all kinds of things dear to the heart of a Seri---plenty of rifles, lots of cartridges, knives, *manta* (unbleached cotton), necklaces, red bandannas, blue overalls, *plata*, or silver, and many other things.

When he awoke he sought his father Manuel Encinas, who is a medicine man and interpreter of dreams, to explain his dream to him. The price demanded by Manuel was six *tiras*---or 30-30 cartridges, a very high price, according to Seri standard. The explanation was this:

It was true that the cave was there and all the things in it just as seen and described by Antonio, but in order to find it he would have to fast nine days and go without water that length of time also, in the heat of summer. Then the way would appear to reach the cave. So far, Antonio has not attempted the fast.

I witnessed the operation of making a certain kind of pitch or tar which the Seris use to make the seams in their canoes or boats tight. The women pound up the dried pulp next to the outside skin of a dead *pitahalla* cactus (organ cactus). This is very dry and brown in color and the pieces are pounded up to a dry powder with a wash or shore rock in a dried deer hide. This is placed in a *batello*, or flat basket, and manipulated so that the coarse pieces come to the top and are scraped off and thrown away. The fine powder is then put in a five gallon can and some porpoise or sea-lion oil or horse oil is poured on it and stirred into a thick gummy mass. When thoroughly mixed it is put over the fire, in an olla, to boil and continually stirred for an hour or two until it is the consistency and has the appearance of coal tar. While being worked it is kept heated and applied to seams inside and outside the boat. It hardens just like tar and answers the same purpose.

Since the corn, which had kept this band of Seris in food, disappeared two days before we came, and they had barely kept going on seeds and a few fish, and they all had decided to leave camp with us in the morning---the women walking and the men and some children in boats---it was necessary to supply them with some food to take them to the hunting grounds of the *cahuama*, or sea turtles, and land them on the Island. The *cahuama* would furnish them meat---their favorite and national food, and the shores would supply them with clams, oysters, crabs and other sea food.

So the whole band was called around our camp and each family was furnished with two cups of corn, two of beans, some green coffee and a cup of cube sugar. For the first time our camp was free of Indians, and we ate and went to bed in peace.

The amenities of civilization were laid aside and forgotten in